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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/690,793	10/17/2000	Gary R. Garrow	10022/29	3170
28164	7590	10/07/2003	EXAMINER	
BRINKS HOFER GILSON & LIONE P O BOX 10395 CHICAGO, IL 60610			REAGAN, JAMES A	
		ART UNIT		PAPER NUMBER
		3621		

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/690,793	GARROW ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	James A. Reagan	3621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 17 October 2000.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-27 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,6-10.
- 4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_

## DETAILED ACTION

### Status of Claims

1. This action is in response to the application filed on 17 October 2000.
2. Claims 1-27 have been examined.

### Information Disclosure Statement

3. The Information Disclosure Statements filed on 22 June 2001 (paper no. 4), 01 October 2001 (paper no. 6), 10 December 2001 (paper no. 7), 29 January 2002 (paper no. 8), 30 September 2002 (paper no. 9), and 27 January 2003 (paper no. 10) have been considered. An initialed copy of each Form 1449 is enclosed herewith.

### Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandifer (US 5,778,381 A) in view of Aragones et al. (US 6,067,486 A).

**Examiner's note:** Examiner has pointed out particular references contained in the prior art of record in the body of this action for the convenience of the Applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may

apply. Applicant, in preparing the response, should consider fully the *entire* reference as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

**Claims 1 and 18:**

With regard to the limitation of *establishing a desired configuration of the mechanical equipment based on a design objective of the mechanical equipment, where in the design objective includes at least one of safety, reliability, and performance*, Sandifer, in at least column 1, lines 10-17 discloses maintenance and repair in compliance with regulatory requirements. It is obvious that the objective when repairing and maintaining an aircraft would be safety, reliability, and performance.

With regard to the limitations of *evaluating an actual configuration of the mechanical equipment, and determining if the actual configuration complies with the desired configuration* Sandifer inherently discloses testing and evaluation of equipment when he discloses maintenance and repair in compliance with regulatory requirements in column 1, lines 10-17. Obviously, if an aircraft is in the shop for a repair due to poor performance or routine maintenance, then a diagnostic or troubleshooting procedure would determine whether the aircraft is operating with specified parameters. Sandifer also discloses problem diagnosis and troubleshooting (column 2, lines 38-51).

Sandifer does not specifically disclose *planning an upgrade requirement for upgrading the actual configuration to the desired configuration if the actual configuration is noncompliant*. However, Aragones discloses planning and "...servicing at a maintenance or repair shop for a number of reasons such as to repair damage to the

aircraft engine, restore operating performance of the aircraft engine, inspect or repair safety flaws in the aircraft engine, or upgrade the aircraft engine for increased operating life" (column 1, lines 9-14). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the maintenance and repair system of Sandifer with Aragones' planned repair and upgrade system because planning for proper repair and maintenance of complex systems such as aircraft ensures the security and dependability of the system while maintaining compliance with local, state, and federal regulations regarding the proper use and operation of such systems.

**Claims 2 and 3:**

With regard to the limitations of:

- *providing part level data on the mechanical equipment for a given point in time within a usable life of the mechanical equipment;*
- *providing a serial number of a component of the mechanical equipment at any given point in time for a given point in time within its usable life to manage the at least one of the safety, reliability and performance;*

Sandifer discloses parts, parts numbers, parts descriptions, and an illustrated parts catalog (column 2, lines 40-62). Sandifer also discloses serial numbers. It is considered old and well-known in the mechanical arts to assign serial numbers to various parts and assemblies. Sandifer does not disclose the lifetime of a part. Aragones, however, in column 2, lines 5-16 discloses life-limited parts. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the maintenance and repair system of Sandifer with Aragones' planned repair and upgrade

system because replacing worn parts before failure ensures the safety of the personal who utilize the system.

**Claims 4, 5, 14, and 27:**

With regard to the limitations of:

- *obtaining a required part for the desired configuration and scheduling human resources consistent with availability of the required part;*
- *procuring a required assembly for the desired configuration and scheduling human resources consistent with the availability of the required assembly;*
- *scheduling and bringing together at least two of the following items at a specific time and place: requisite parts, technical instructions, supporting equipment, acceptance criteria and procedures, tools, and repair personnel;*

Sandifer, in column 57, lines 43-45, discloses maintenance scheduling software, inherently disclosing the necessity of scheduling a technician to conduct routine maintenance or a repair when a part is ready or needs to be replaced.

**Claims 6, 19, and 20:**

With regard to the limitations of:

- *desired configuration includes configuration data on at least one of the following configuration attributes: equipment identifier, equipment description, assembly identifier, assembly description, part identifier, part*

*description data, installed location data, installed position data, installation date, utilization history data, maintenance history data, longevity information, part specifications data, assembly specification data, and equipment specification data;*

- *actual configuration in the configuration database includes configuration data on at least one of the following configuration attributes: equipment identifier, equipment description data, assembly identifier, assembly description data, part identifier, part description, installed location data, installed position data, installation date, utilization history data, maintenance history data, longevity information, part specification data, assembly specification data, and equipment specification data;*

Sandifer, in Figure 76 and associated text, discloses parts information.

#### **Claims 7-9:**

With regard to the limitations of:

- *establishing the desired configuration based upon monitoring operational performance of a part;*
- *establishing the desired configuration based upon monitoring the operational performance of an assembly;*
- *establishing a desired configuration based upon monitoring operation performance of the mechanical equipment;*

The Examiner takes **Official Notice** that it is old and well-known in the mechanical arts to test parts, assemblies, and equipment after routine

maintenance or repair to ensure that each item of significance is functioning properly and within specified parameters. Ensuring that recently repaired systems are performing properly reduces downtime and saves money.

**Claims 10 and 11:**

With regard to the limitations of:

- *establishing a desired configuration based on a substituted part with a greater longevity substituted for a part with a lesser longevity;*
- *establishing a desired configuration based on a substituted assembly with a greater longevity substituted for an assembly with a lesser longevity;*

The Examiner takes **Official Notice** that it is old and well-known in the mechanical arts to replace parts, assemblies, and equipment that will have a longer or extended lifetime to ensure that each item of significance is functioning properly and within specified parameters. Updating the configuration with the latest lifetime expectation of the new part ensures that the element will not be unnecessarily replaced before its scheduled replacement, which reduces downtime and saves money.

**Claims 12 and 13:**

With regard to the limitations of:

- *updating the desired configuration based on engineering change;*
- *updating the desired configuration to facilitate compliance with a regulatory requirement;*

Sandifer, in column 1, lines 18-40, discloses manufacturer and governmental updates to aviation maintenance publications.

**Claim 15:**

With regard to the limitation of *determining the actual configuration by disassembly and inspection of at least a portion of the mechanical equipment*, Sandifer discloses disassembly instructions (column 6, line 21), inherently disclosing disassembly of parts and pieces, as well as various inspections (column 42, lines 21-34). It is old and well-known in the mechanical arts to disassemble and inspect components to ensure proper operation.

**Claim 16:**

With regard to the limitation of *defining a template for configuration data prior to populating an actual configuration database and a desired configuration database with the configuration data*, Sandifer shows various data configuration forms in Figures 21-41. It is old and well-known in the database arts that fields within a database may be populated according to parameters set by a user, such as, for example, configurations data, parts data, or repair data.

**Claim 17:**

With regard to the limitation of *managing disposition of a removed component of the mechanical equipment*, the Examiner takes Official Notice that it is old and well-known to consider disposal and salvage responsibilities when maintaining, updating, replacing, and repairing equipment, since salvageable parts and equipment may hold value as an asset.

**Claims 21-26:**

With regard to the limitations of:

- *a maintenance input/output device is arranged to update the configuration data in the actual configuration database;*
- *the maintenance input/output device comprises a monitor for monitoring part longevity data of a part and for sending part longevity data for storage in the actual configuration database;*
- *the maintenance input/output device comprises a monitor for monitoring assembly longevity data of an assembly and sending the assembly longevity data to the actual configuration database;*
- *the maintenance input/output device comprises a monitor for monitoring operational performance of mechanical equipment;*
- *an engineering input/output device is arranged to update the configuration data in the desired configuration database;*
- *a supervisory input/output device is arranged to access a supervisory database for storing historic configurations and associated repair history data;*

Sandifer discloses a computer that functions as an input/output device for maintaining various records of maintenance, repair, and parts specifications. It is old and well-known in the computer arts that computers can function as workstations for technicians and repairmen, and as servers for maintaining

comprehensive records such as found on a large database. Security functions such as administrative features are also old and well-known in the computer arts.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **James A. Reagan** whose telephone number is (703) 306-9131. The examiner can normally be reached on Monday-Friday, 9:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **James Trammell** can be reached at (703) 305-9768.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Receptionist** whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

***Commissioner of Patents and Trademarks***

**Washington, D.C. 20231**

or faxed to:

**(703) 305-7687** [Official communications; including

After Final communications labeled "Box AF"]

**(703) 308-1396** [Informal/Draft communications, labeled "PROPOSED" or  
"DRAFT"]

Hand delivered responses should be brought to Crystal Park 5, 2451 Crystal Drive, Arlington, VA, 7<sup>th</sup> floor receptionist.

JAR  
29 September 2003

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